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EXAMINER

WANG, LEMING

ART UNIT PAPER NUMBER

2633

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/078,392

Applicant(s)

CHIARONI ET AL.

Examiner

Leming Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7, and 10-13 is/are rejected.
- 7) ☒ Claim(s) 8 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1-4, 7, 8, 12 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/21/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37 CFR 1.83(b) reads as follows:

When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because structures and elements of figures 1-4, 7,8, and 12 should be labeled.

Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. No circuitry or structure design is provided to teach how format adaptation, classification, contention resolution, and resequencing are done. For example, which module in the drawing does the classification, and so on. Furthermore, how format adaptation, classification, contention resolution, and resequencing perform by each identified module. Consequently, the specification does not provide an enabling discussion for claim 4.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 7, 10 - 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 7 and 10, the terms "x% " and "100-x% " are a relative terms which renders the claim indefinite. The term "x% and 100-x% " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Applicant fails to define X in claim 7 and 10.

Regarding claims 11 and 12, the recitation “ wherein Instead of said at least of two optical packet add drop multiplexer at least two optical cross-connect are used”, and “wherein Instead of said at least of two optical packet add drop multiplexer at least one optical cross-connect and one optical packet add drop multiplexer are used”, respectively. These recitations are contradictory to the independent claim 1, which recites, “at least two optical packet add drop multiplexer, ...”. Furthermore, claims 11 and 12 fail to further limit the claimed invention recited in previous independent claim because they remove limitation (at least two optical packet add drop multiplexer) for the independent claim 1.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 3, 5, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by *Milton et al.* (US patent No: 6,556,321)

Regarding Claim 1, *Milton et al.* teach that optical packet node for receiving and transmitting optical packets, comprising:

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a multiwavelength band splitting device (10, Fig.3) for splitting received optical packets transmitted via multiwavelength bands (12, 17, Fig.3, Col.2, lines 12-20; Col.4, lines 1-2; Col.5, lines 1-2, 32-33) into at least three groups (Col.4, lines 35-37; Col.5, line 38), each group including one multiwavelength band (12, Fig.3, Col.5, lines 1-2, for example, output from multiplexer 19 comprising of a multiwavelength band), a multiwavelength band combining device (11, Fig.3) for combining said at least three groups of multiwavelength bands (Fig.3, Col.2, lines 12-20; Col.4, lines 35-37; Col.5, line 38), at least two optical packet add drop multiplexers (18, 19, Fig.3), each optical packet add drop multiplexer being placed between said multiwavelength band splitting device (10, Fig.3) and said multiwavelength band combining device (11, Fig.3), and each optical add drop multiplexer serving to add and to drop at least one individual wavelength (Fig.3, and Col.5, lines 14-16) to a respective group of a multiwavelength band (12, 17, Fig.3), and a load balancing stage (15, Fig.3, cross-connect 15 interconnect between bands, added, and dropped wavelengths) being connected to at least two of said optical packet add drop multiplexers (18, 19, Fig.3), to provide an interconnection between at least two wavelength bands (15, Fig.3 and Col.5, lines 21-23).

Regarding claim 2, *Milton et al.* teach that optical packet node as claimed in claim 1, wherein said load balancing stage (15, Fig.3) includes an electric packet switch (15, Fig.3, Col., lines 18-21) to provide a load balancing between the data packets to be added and transmitted and the available wavelength capacity (15, Fig.3, Col.5, lines 18-21, 59-63).

Regarding claim 3, *Milton et al.* teach that optical packet node as claimed in claim 1, wherein said Optical packet node further comprises of least two interface modules (16, Fig.3, Col.5, lines 20; 115, Fig.4, Col.5, line 62) being connected to the load balancing stage to provide the data packets to be added and transmitted (Col.5, lines 18-21).

Regarding claim 5, *Milton et al.* teach optical packet node as claimed in claim 1, wherein said multiwavelength band splitting device includes a demultiplexer (10, Fig.3), a filter (Col.4, lines 65-67 to Col.5, lines 1, lines 36-41), and that said multiwavelength band combining device includes a multiplexer (11, Fig.3).

Regarding claim 12, *Milton et al.* teach that optical packet node as claimed in claim 1, wherein instead of said at least two optical packet add drop multiplexers at least one optical packet cross-connects (15, Fig.3, Col.3, lines 9-10; Col.5, lines 1-2, 21-22) and at least one optical packet add drop multiplexers (18, 19, Fig.3) are used.

Regarding claim 13, *Milton et al.* teach that optical packet node for receiving and transmitting optical packets, comprising:

a multiwavelength band splitting device (10, Fig.3) for splitting received optical packets transmitted via multiwavelength bands (Fig.3, Col.2, lines 12-20; Col.4, lines 1-2; Col.5, lines 1-2, 32-33) into at least three groups (Fig.3, Col.2, lines 12-20; Col.4, lines 35-37;

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Col.5, line 38), each group including one multiwavelength band (12, 17, Fig.3), a multiwavelength band combining device (11, Fig.3) for combining said at least three groups of multiwavelength bands (Fig.3, Col.2, lines 12-20; Col.4, lines 35-37; Col.5, line 38), at least one optical packet add drop multiplexer (18, 19, Fig.3), each optical packet add drop multiplexer being placed between said multiwavelength band splitting device (10, Fig.3) and said multiwavelength band combining device (11, Fig.3), and each optical packet add drop multiplexer serving to add and to drop at least one individual wavelength (Fig.3, and Col.5, lines 14-16) to a respective group of a multiwavelength band (12, Fig.3, Col.5, lines 1-2), and at least one optical packet cross-connect (15, Fig.3), each optical packet cross-connect being placed between said multiwavelength band splitting device (10, Fig.3) and said multiwavelength band combining device (11, Fig.3), and each optical packet cross-connect serving to switch at least one individual wavelength (15, Fig.3, Col.3, lines 9-10; Col.5, lines 21-26) of a respective group of a multiwavelength band (Fig.3, Col.2, lines 12-20; Col.4, lines 1-2; Col.5, lines 1-2, 32-33).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Milton et al.* (US patent No: 6,556,321) in view of *Sotom et al.* (US patent No: 5,796,501).

Regarding claim 6, *Milton et al.* differ from the claimed invention in that *Milton et al.* do not teach the load balancing stage is telemetrically programmable. However, *Sotom et al.* disclose a control unit that is programmed (Col.5, lines 55-57). Accordingly, it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate a programmed control unit into the modified system by *Milton et al.* to execute selection algorithm and manage the conflicts.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Egnell et al.* (US patent No: 6,590,681) in view of *Tanaka et al.* US patent No: 6,512,613).

Regarding claim 7, as it is understood in view of the above 35 U.S.C 112 problem, *Egnell et al.* teach optical packet node, wherein each of the optical packet add drop multiplexers (37e, 35e, Fig.4) comprises an optical packet add drop multiplexer (37e, 35e, Fig.4) for receiving and transmitting optical packets and to add and to drop at least one individual wavelength (i.e., λ_{re2} , Fig.4) to and from a group of wavelengths in one multiwavelength band (i.e., λ_{re1} , λ_{re2} , ... λ_{ren} , Fig.4), each said multiplexer comprising:

a drop stage (37e, Fig.4) to drop at least one received individual wavelength (i.e., λ_{re2} , Fig.4) of said group of one multiwavelength band (i.e., λ_{re1} , λ_{re2} , ... λ_{ren} , Fig.4), a transit stage (31e, Fig.4) to forward at least one received individual wavelength band (i.e., λ_{re1} , Fig.4), an add stage (35e, Fig.4) to add at least one individual wavelength to said group of wavelengths (i.e., λ_{re1} , λ_{re2} , ... λ_{ren} , Fig.4),.

Egnell et al. further teach using a wavelength band coupler (17e, Fig.4) to forward part of the optical signal power of the received optical packets to a first output (Fig.4, the one of two output ports of coupler, 17e, which arrow points to the right), and to forward another portion of the optical signal power of the received optical packets to a second output (Fig.4, another one of two output ports of coupler, 17e, which arrow points down to the DMUX, 37e), the first output being connected to the transit stage (31e, Fig.4) and the second output being connected to the drop stage (37e, Fig.4), and a coupler (23e, Fig.4) to couple the output signals of the transit stage (31e, Fig.4) and the output signals of the add stage (35e, Fig.4).

Egnell et al. differ from the claimed invention in that *Egnell et al.* do not teach each added wavelength being unequal to each of the forwarded wavelengths. However, *Tanaka et al.* teach how to achieve an added wavelength unequal to the dropped wavelength (i.e., transmitted wavelengths $\lambda_1 - \lambda_8$ and $\lambda_9 - \lambda_{32}$, added wavelengths $\lambda_{33} - \lambda_{40}$, Fig.4, Col.4, lines 3-7).

Accordingly, it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate the method used in a WDM transmission system for transmitting and adding signal with separate groups consisting of different

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wavelengths, as taught by *Tanaka et al.*, into an optical add drop node of the WDM optical network of *Egnell et al.* to add, drop and transmit a plurality of different channels.

Allowable Subject Matter

12. Claims 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 8 and 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Thompson et al., US patent No: 6,243,179, "Banded Add Drop Device" is about a demultiplexer to demultiplex an incoming WDM signal that contains a given number of channels into a given number of bands.

2. Shimomura et al., US patent No: 6,404,525, "Optical Add-drop Multiplexer", is showing OADM capable of dropping /adding a signal light having arbitrary wavelength within a node.

2. Shimomura et al., US patent No: 6,404,525, "Optical Add-drop Multiplexer", is showing OADM capable of dropping /adding a signal light having arbitrary wavelength within a node.

3. Lahat et al., US patent No: 6,233,074 "Ring Networks Utilizing Wave Division Multiplexing" is showing an optical add drop module (OADM) to enable the connection of ring network with plurality of nodes.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leming Wang whose telephone number is 571 272 3030. The examiner can normally be reached on 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272 3112. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lw


M. R. SEDIGHIAN
PRIMARY EXAMINER